CLAIMS

What is claimed is:

1. A method of screening a candidate compound for susceptibility to metabolism by a selected enzyme, the method comprising the steps of:

(a) reacting the candidate compound, an indicator compound precursor and the selected enzyme, the enzyme characterized as having a side reaction associated with metabolic activity of the enzyme wherein a chemical species capable of reacting with the indicator compound precursor is produced; and

(b) detecting an indicator compound, the indicator compound produced from the indicator compound precursor by reaction with the chemical species produced from the side reaction associated with metabolic activity of the enzyme, the detection of the indicator compound indicating the susceptibility of the candidate compound to metabolism by the enzyme.

2. The method of claim 1, wherein the selected enzyme comprises a cytochrome P450 enzyme.

3. The method of claim 2, wherein the cytochrome P450 enzyme is selected from the group consisting of CYP1A2, CYP2C9, CYP2C19, CYP2D6, CYP3A4 and combinations thereof.

4. The method of claim 2, wherein the cytochrome P450 enzyme comprises a human cytochrome P450 enzyme.

5. The method of claim 4, wherein the human cytochrome P450 enzyme is selected from the group consisting of CYP1A2, CYP2C9, CYP2C19,

CYP2D6, CYP3A4 and combinations thereof.

6. The method of claim 1, wherein the selected enzyme comprises xanthine oxidase.

7. The method of claim 1, wherein the chemical species produced from the side reaction associated with metabolic activity of the enzyme comprises a reactive oxygen species.

8. The method of claim 1, wherein the indicator compound precursor is selected from the group consisting of a fluorogenic compound, a colorimetric compound, a chemiluminescent compound and combinations thereof.

9. The method of claim 1, wherein steps (a) and (b) are carried out in at least one well of a multi-well plate.

10. The method of claim 1, further comprising screening a plurality of candidate compounds simultaneously for susceptibility to metabolism by a selected enzyme.

11. The method of claim 10, wherein steps (a) and (b) are carried out in multiple wells of a multi-well plate.

12. A method of screening a candidate compound for susceptibility to metabolism by a cytochrome P450 enzyme, the method comprising the steps of:

(a) reacting the candidate compound, a cytochrome P450 enzyme and an indicator compound precursor; and

(b) detecting an indicator compound, the indicator compound produced from the indicator compound precursor by reaction with a side reaction product associated with cytochrome P450

metabolic activity, the detection of the indicator compound indicating the susceptibility of the candidate compound to metabolism by the cytochrome P450 enzyme.

13. The method of claim 12, wherein the cytochrome P450 enzyme is selected from the group consisting of CYP1A2, CYP2C9, CYP2C19, CYP2D6, CYP3A4 and combinations thereof.

14. The method of claim 12, wherein the cytochrome P450 enzyme comprises a human cytochrome P450 enzyme.

15. The method of claim 14, wherein the human cytochrome P450 enzyme is selected from the group consisting of CYP1A2, CYP2C9, CYP2C19, CYP2D6, CYP3A4 and combinations thereof.

16. The method of claim 12, wherein the side reaction product associated with metabolic activity of the cytochrome P450 enzyme comprises a reactive oxygen species.

17. The method of claim 12, wherein the indicator compound precursor is selected from the group consisting of a fluorogenic compound, a colorimetric compound and combinations thereof.

18. The method of claim 12, wherein steps (a) and (b) are carried out in at least one well of a multi-well plate.

19. The method of claim 12, further comprising screening a plurality of candidate compounds simultaneously for susceptibility to metabolism by a selected enzyme.

20. The method of claim 19, wherein steps (a) and (b) are carried out in multiple wells of a multi-well plate.